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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,662	02/10/2004	Hiroyuki Suzuki	009683-498	9430

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EXAMINER	
TYLER, NATHAN K	

ART UNIT	PAPER NUMBER
2625	

NOTIFICATION DATE	DELIVERY MODE
04/03/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/774,662	SUZUKI ET AL.	
	Examiner	Art Unit	
	NATHAN K. TYLER	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4, 7, 8, 11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shirasawa et al. (US 5689590 A) and Ball (US 6323957 B1).

Regarding **claims 1 and 8**, Shirasawa discloses an input portion inputting color image data read from a document by a reading portion ("a color image represented on a sheet of paper is read by means of an image input device including a scanner" at column 5, line 25); a converter that converts a portion of the color image data into chromaticity data ("The color space

conversion unit 1 converts input image data in a RGB color space into image data in a L*u*v* color space" at column 7, line 58); a detector detecting whether the input color image data is out of a predetermined color space (Fig. 3, numeral 130 "background noise removing unit"); and a determining portion determining that the color image data is image noise when the detector detects that the color image data is out of the predetermined color space (See Fig. 7B, pixels with RGB density values that fall inside zone Z0 are determined to be "background noise." "in RGB color space, a color located near the origin is determined as white or a highlight. (A color determined as white or as a highlight is a color on which the background [noise] removing process will be performed" at column 9, line 58).

Shirasawa does not disclose that the detector detects whether the input color image data is out of a predetermined color space based on lightness data and the chromaticity data (As shown in the equations listed in column 8, noise removal is performed in the L*u*v space, but only the L channel is considered).

Ball teaches a noise removal method that makes a determination of noise based on both lightness and chromaticity data (As shown in columns 4 and 5, input data is converted to a Lab or YCC color space, which is translated into values C0, C1, and C2, where C0 is lightness and C1 and C2 are hue. As shown in Fig. 8, these hue values are evaluated against mean C1 and C2 values to determine whether or not a given pixel is out of an acceptable color space).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the image processing apparatus disclosed by Shirasawa to detect whether an input color image data is out of a predetermined color space based on lightness data and

chromaticity data as taught by Ball, so that noise could be determined against a colored background, such as a document printed on colored paper (see Ball column 5, line 10).

Regarding **claims 4 and 11**, Shirasawa discloses a corrector correcting the color image data determined by the determining portion as image noise (See Fig. 7B, pixels determined to be background noise are adjusted to a uniform density value (0,0,0)).

Regarding **claim 7**, Shirasawa discloses an image producing apparatus comprising the image processing apparatus according to claim 1 ("This space conversion is performed in order to provide image data compatible with an output device. That is, for example, the image data to be provided must be in the RGB color space when the image is to be represented on a display screen, and the image data to be provided must be in the YMC color space when the image is to be represented on a sheet of paper by means of a color printer." At column 8, line 51).

Regarding **claims 14 and 15**, Shirasawa discloses that the lightness data of the color image data is converted using a threshold table to generate a threshold which is compared to the chromaticity data of the color image data to determine if the image data is out of the predetermined color space (The threshold table disclosed by Shirasawa is shown in Fig. 7B. Imagining a color point plotted in the RGB space shown in Fig 7B, the lightness of this point is given by the distance from the point to the origin. The chromaticity is determined by the angle of this vector. Therefore the lightness (distance) is compared to this table to generate a threshold. Although chromaticity data is considered, for the table shown in Fig. 7B, chromaticity will have no impact. The color is compared to the threshold table to determine whether or not it is out of the predetermined color space).

3. Claims 2, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shirasawa and Ball as applied to claim 1 above, and further in view of Kawai (US 6292269 B1).

Regarding **claims 2 and 9**, while Shirasawa discloses an image processing apparatus that determines image data to be noise data when it is out of a predetermined color space, specifically when the image data is white image data that has an improper white value (see Fig. 7B), Shirasawa does not disclose that the predetermined color space is further determined in accordance with a characteristic of the reading portion.

Kawai discloses an image processing apparatus for noise removal, where image data is judged to be noise when it is out of a predetermined color space that is determined in accordance with a characteristic of a reading portion ("The control unit 10 then determines, in Step S108, if the peak white value W.sub.P is smaller than or equal to the reference white value W.sub.R. The reference white value W.sub.R is such a value (i.e., 120) that no normal white output may have when the image sensor 2 performs the image reading operation... In this case, the control unit 10 determines that the reference white/black plate 1a the CCD 2a carries a foreign particle such as dust or the like." at Kawai column 10, line 9.)

It would have been obvious at the time the invention was made to one of ordinary skill in the art to further configure the color space disclosed by Shirasawa in accordance with a characteristic of a reading portion as disclosed by Kawai, so that noise caused by particulates on the reading surface could be eliminated, as well as background noise in the image ("The reference white value W.sub.R is such a value (i.e., 120) that no normal white output may have

when the image sensor 2 performs the image reading operation… In this case, the control unit 10 determines that the reference white/black plate 1a the CCD 2a carries a foreign particle such as dust or the like." at Kawai column 10, line 9).

4. Claims 3, 5, 6, 10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shirasawa and Ball as applied to claim 1 above, and further in view of Kondo et al (US 7072075 B2)

Regarding **claims 3 and 10**, Shirasawa does not disclose that when the color image data detected by said detector to be out of said predetermined color space continues in a sub scanning direction of said reading portion, said determining portion determines the continuing color image data as image noise.

Kondo discloses that when the color image data detected by said detector to be out of said predetermined color space continues in a sub scanning direction of said reading portion, said determining portion determines the continuing color image data as image noise ("the change of the second phenomenon occurs in a predetermined number of lines in the sub-scanning direction… it is judged that stripes occur due to the dust D adhering to the reading positions of the corresponding pixels" at column 8, line 13).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to expand the determining portion determining that color image data is noise when image data is out of a predetermined color space as taught by Shirasawa to also determine that image data is noise when the data out of a predetermined color space continues in a sub-scanning direction as taught by Kondo, so that dirt could be detected on the contact glass as well as the

reference plate ("…detection of stripes in the sub-scanning direction on an image due to adhesion of dust to the contact glass…" at Kondo column 7, line 1).

Regarding **claims 5 and 12**, Shirasawa does not disclose a reading portion having a plurality of line sensors arranged in a sub scanning direction at predetermined intervals and respectively corresponding to different colors.

Kondo discloses a reading portion having a plurality of line sensors arranged in a sub scanning direction at predetermined intervals and respectively corresponding to different colors ("Concretely, the CCD sensor includes three pixel rows 41R, 41G, and 41B… in a direction perpendicular to the pixel arrangement direction" at column 4, line 29).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to use the plurality of line sensors taught by Kondo as the color image data reading portion in the system taught by Shirasawa, as it is very well known in the art that line sensors are readily available, low-cost, and have been proven durable for color scanning purposes.

Regarding **claims 6 and 13**, Shirasawa does not disclose that the reading portion reads the color image data with the reading portion kept stationary and a document moved with respect to the reading portion.

Kondo discloses that the reading portion reads the color image data with the reading portion kept stationary and a document moved with respect to the reading portion ("The first reading unit reads a plurality of color components of a document image while scanning the document fed to the reading position by the feeding unit" at column 2, line 9)

It would have been obvious at the time the invention was made to one of ordinary skill in the art to keep the reading portion taught by Shirasawa stationary while feeding the document to the reading position as taught by Kondo, as this well known method of scanning a document is faster than alternative methods ("the latter image reader, which moves a sheet document, is more advantageous than the former one, which moves the reading optical system, in terms of improvement in document image reading speed." at Kondo column 1, line 22).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN K. TYLER whose telephone number is (571)270-1584. The examiner can normally be reached on M-F 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

/Nathan Tyler/
Examiner
Art Unit 2625